mite molds. In either case the calcitic shells evidently were deposited in a dolomite ooze. (5) Perfect dolomite rhombs are sometimes embedded in compact, horn-like calcitic beds. (6) Dolomitization bears no relation to the present pore space of beds as it probably would if it had been affected by underground waters.

That replacement was an important process in dolomitization is shown by the bunchy distribution of dolomite in mixed beds of dolomite and limestone, by the invasion of calcitic fossil casts by dolomite rhombs, and by local dolomitization adjacent to or within pervious marine structures, worm borings, shell cavities, etc. Dolomite grains in contact with calcite were all rhombohedral, but had no calcite inclusions. Anhedral form was the rule for dolomite grains in contact with their own kind. Certain facts suggest that dolomitization may take place by direct precipitation near the sea bottom, and by recrystallization of magnesia-bearing skeletons. Proof for the latter processes was not obtained.

Fossils and the shallow water structures of most dolomites show that, like most limestones, they were laid down in shallow warm seas. Salinity seems to have favored dolomitization, since dolomites are common in the enclosed basin deposits. Chemical and mineralogical studies show that dolomites contain isomorphously combined ferrous oxide. This shows positively that dolomites were laid down under reducing conditions.

The writer was able to differentiate calcite from dolomite very successfully with a modified form of the Lemberg solution consisting of 4 grams of fresh $AlCl_3$ crystals, 6 grams extract of logwood, 1,400 grams of water, boiled for 20 minutes with constant stirring and then filtered. Dolomite turns blue in a dilute solution of HCl about 1/10 normal with a few drops of freshly prepared potassium ferricyanide because of its ferrous iron content. Sedimentary calcite in all cases did not show a trace of ferrous iron.

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CELLOIDIN PARAFFIN METHOD

MANY of the difficulties encountered in sectioning hard and brittle objects (chitin, eggs with yolk, etc.) may be overcome by the use of a method which I find is not generally known or used in this country, and which I have been asked to publish in SCIENCE. It is the celloidin-paraffin method of Apáthy,[1] published by him in detail in 1912. Although long, this method combines the advantageous qualities of both the paraffin and celloidin methods, without introducing any disadvantages of either of these methods. There is no shrinkage as in the cooling of paraffin; ribbons can be cut and spread out on the slide by warming as with paraffin; thin sections may be cut even in warm weather, due to the firm nature of the infiltrated celloidin. The method consists of embedding the object in celloidin, clearing and dehydrating the hardened celloidin block, and then infiltrating with paraffin the celloidin block with its contained object. The chief advantage of Apáthy's technique lies in the use of his oil mixture, which is given below.

The method is as follows:

1. Fix, wash and dehydrate material in the usual way, finally putting through three changes of absolute alcohol.

2. Put into a tube of ether-alcohol at least 5 hours, keeping the object high in the tube. (Test tubes of various widths serve nicely for this, the object being held wherever desired by a loose plug of dry cotton wool inserted in the liquid.)

3. Two per cent. celloidin for twenty-four hours, deep in the tube.

4. Four per cent. celloidin for twenty-four hours, deep in the tube.

5. Put object into paper embedding box (or small dish) of four per cent. celloidin, and harden in chloroform vapor twelve hours.

6. Quickly trim excessive celloidin from the object, leaving a few millimeters on each side, and put deep into tube of chloroform for 12 hours.

7. Put into a tube of Apáthy's oil mixture

[1] Apáthy, S., 1912, "Neuere Beitraege zur Schneidetechnik," *Zeitschr. wiss. Mikr.*, Bd. XXIX., S. 449–515, 4 textfiguren.

until the block becomes clear and sinks; this may take from three days to a week. The oil mixture is as follows:

Chloroform by weight	4 parts
Origanum oil by weight	2 parts
Cedarwood oil by weight	4 parts
Absolute alcohol by weight	1 part
Carbolic acid crystals by weight	1 part

Put some dried sodium sulphate into the bottom of the tube to take up the water brought into the mixture by the celloidin.

8. Wash cleared block in three or more changes of benzol; this takes out oils and alcohol, and prepares for paraffin infiltration.

9. Infiltrate in paraffin, and embed. The temperature of the bath and long duration of infiltration will not cause shrinkage, as Apáthy states that blocks left in a bath at 70° C. for a week showed no shrinkage. To insure good ribbons I find a paraffin of medium hardness satisfactory in most cases, and leave a margin of pure paraffin about the celloidin-paraffin block when trimming. Where hard chitin is to be cut and the firmest possible block is desired, I use hard paraffin to infiltrate, and cut with a slanting knife on a sliding microtome.

10. Section and mount, using Mayer's fixative; then spread out and affix by warming as for paraffin sections. In staining on the slide, avoid leaving for any great length of time in xylol or absolute alcohol, as these liquids will dissolve the celloidin. A clearing oil instead of xylol may be used to advantage before the balsam. When objects stained in bulk are used, merely remove the paraffin in xylol and mount in balsam.

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THE ASPHYXIATION OF CANCER

Granting, at the present time, that early surgical removal is the most satisfactory method of curing cancer, there still remains the "hope which springs eternal in the human breast" of the scientist that a day will come when a successful non-surgical treatment of cancer may be realized. For centuries competent investigators have been seeking this goal, but without avail. With the exception of toxic gases, practically all of the possible chemical, physical and biological agents have been tried, including cell poisons, caustics, electricity, heat, light (visible and invisible rays), "vaccines," sera, and cell or organ extracts. The chief difficulty has been the finding of an agent which has a specific destructive action on the cancer cell without an injurious effect upon the surrounding healthy tissues. It must be admitted that a rational non-surgical treatment awaits the demonstration of a specific causal agent, or of a logical explanation of such an abnormality based on a thorough study of the chemistry and physics of protoplasm in general and of the living cell in particular.

A working hypothesis concerning the cause of cancer has been formulated by the writer after several years of theoretical and practical study. According to this hypothesis cancer is the result of localized, unchecked, over-combustion, or hyperoxidation, in epithelial cells; this condition is brought about by the concentrated, accelerated and uninhibited action of intracellular oxidizing enzymes, or their coenzymes, as a result of various injurious agents.

Based upon this theory, a rational treatment of the disease involves the inhibition of such "hyper-oxidations," or the complete asphyxiation of the cancer cells. This may be attempted indirectly by attacking the intracellular oxidizing enzymes (upon which cell oxidations, growth and multiplication so largely depend) or by renewing those enzymes in the body whose function it is to combat injurious cell oxidations. The direct asphyxiation of the cancer cell involves (1) the withholding of oxygen (so necessary for cell life) either by cutting off the blood supply or by absorbing the oxygen itself before it can be of service to the tumor cells; or (2) the introduction of sufficient carbon dioxid, or other toxic gases, to cause the suppression of oxidations in the tumor cells. It is evident that such a treatment must be confined to the cancer cells, for the general effect would be to kill all of the body cells. Herein lies the chief difficulty in its practical application.

Experimental work, involving the above